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"Financial Analysis of Public & Private sector banks: Bankometer Model"

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Abstract

The Bankometer model has been developed by International Monetary Fund to identify financial soundness of banks. The Model helps to find the solvency scores of the banks to avoid insolvency issues and to measure the financial position by taking into account the contribution of each ratio in the model according to the IMF (2000) norms. The present study attempts to make comparison between top 5 public & private sector banks (Market Capitalization) on the basis of Bankometer model from a time period of 2010 -2020. The top 5 public sector banks undertaken for study are SBI, IDBI , PNB , UBI & BOB & The top 5 private sector banks undertaken for study were HDFC , Kotak Mahindra bank , ICICI , Axis & Bandhan bank. For all the banks solvency score (S) has been calculated. It was concluded from the study that the S-score of private banks is more than public banks, which implies that the financial position of private sector banks is better than public sector banks. Among the public sector banks SBI bank is the most solvent bank & Bank of Baroda held the last position , whereas among the private sector banks HDFC bank is the most solvent bank & Bandhan bank is ranked last .

Key Words: Bankometer model, public sector banks , public sector banks

Introduction

Banking Sector is the backbone of Indian economy. To ensure financial stability in the economy the bank's solvency needs to be measured. Ability of a bank to meet its long-term debts and financial obligations is termed as solvency. It is an important measure of financial health, since its one way of demonstrating a bank's ability to manage its operations into the foreseeable future.

The present study has used Bankometer model to measure the Solvency scores of banks. The Bankometer model has been developed by International Monetary Fund to identify financial soundness of banks. The model helps the bank's internal management to determine insolvency issues and eradicate the shortcomings pointed out by the model.

Objectives of the study

1) To assess the solvency score of top 5 Indian public sector banks using Bankometer model.

2) To assess the solvency score of top 5 Indian private sector banks using Bankometer model.

3) To compare the public & private sector banks on basis of their solvency scores.

Research Methodology

The present study is based on secondary data. The data has been obtained from Annual reports of banks . The study aims at calculating solvency ratio using Bankometer model of top 5 public & private sector banks for a time period 2000-2010. The top 5 public & private sector were selected on the basis market capitalization values as on 31st March, 20.

Public Sector Banks

Banks	Market Capitalization (in cr)(31st March,20)
SBI	176,707.31
idbi	39,186.74
PNB	31,431.50
UBI	22,989.94
BOB	21,092.89

Private sector banks

Banks	Market Capitalization (in cr))(31st March,20)
HDFC	592,191.50
KMB	262,967.45
ICICI	253,594.72
AXIS	135,243.15
Bandhan	49,389.28

Bankometer Techniques was developed by IMF in 2002, and also accepted worldwide. The following formula has been suggested by IMF for calculation:-

S-Score = 1.5(CA) +1.2(EA) +3.5(CAR)+0.6(NPL)+0.3(CI)+0.4(LA)

'S' stands for solvency score.

S-Solvency score	Financial Position
value of S <50	Insolvent
value of S 50<S<70	Grey Area
value is S>70	Financial Sound

Bankometer parameters and IMF limits

CA = Capital to Asset Ratio (CA≥04percentage)

EA = Equity to Asset Ratio (EA≥02percentage)

CAR = Capital Adequacy Ratio (40percentage≤CAR≥08percentage)

NPL = Non Performing Loan Ratio (NPL ≤ 15percentage)

CI = Cost to Income Ratio (CI≤40percentage)

LA = Loans to Asset Ratio (LA ≤65percentage)

Data Interpretation

A) Public sector Banks

Table 1: Capital to Assets Ratio

Banks	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SBI	6.120	5.311	6.290	6.313	6.60	6.271	6.120	6.958	6.343	6.002	5.872
idbi	3.552	5.749	6.692	6.579	7.185	6.830	7.404	6.237	6.055	11.743	11.344
PNB	5.975	5.685	6.071	6.824	6.521	6.477	5.740	5.809	5.363	5.779	7.517
UBI	NA	5.409	5.581	5.546	5.222	5.178	5.656	5.177	5.149	5.361	6.135
BOB	NA	5.872	6.143	5.843	5.457	5.572	5.988	5.800	6.027	5.882	6.206

Table 1 depicts Capital to Assets Ratio of top 5 public sector banks. The ratio signifies whether there is enough capital with the bank to cover its assets. It is useful to regulators, business managers and investors, as it sheds light on a bank's financial status As per the Bankometer model the ratio should be more than or equal to 4%. For all the public sector banks the ratio is more 4% , indicating good financial status. The ratio has increased for all banks from 2010-2020, except for SBI bank, where the ratio has marginally declined.

Table 2: Cost to Income Ratio

Banks	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SBI	52.59	41.23	38.00	34.09	36.76	36.85	39.14	41.15	47.52	44.68	43.47
IDBI	NA	23.02	18.15	23.72	26.63	27.61	41.85	46.84	69.54	95.86	96.20
PNB	39.39	41.27	39.75	42.81	45.06	46.74	46.79	41.57	56.75	47.03	44.82
UBI	40.66	47.85	43.15	44.70	51.24	51.34	52.10	46.42	47.26	48.80	45.02
BOB	43.57	39.87	37.55	39.79	43.44	43.63	50.30	45.86	45.87	45.56	47.86

Table 2 depicts Cost to Income Ratio of top 5 public sector banks . The ratio indicates the profitability of banks. Lower the ratio, higher is the profitability of banks. The Ratio has increased for IDBI & Union Bank of India from 2010 to 2020 . The increasing ratio indicates declining profitability of these banks.

Table 3: Capital adequacy Ratio (%)

Banks	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
SBI	13.39	11.98	13.86	12.92	12.96	12.00	13.12	13.11	12.60	12.72	13.06
IDBI	-	14.00	15.00	13.00	12.00	12.00	12.00	11.00	10.00	12.00	13.00
PNB	14.16	12.42	12.63	12.72	12.29	12.21	11.28	11.66	9.20	9.73	14.14
UBI	12.51	12.95	11.85	11.45	11.89 II) 10.80(B III)	10.74(B II) 10.22(B III)	11.14(B II) 10.56(B III)	12.91(B II) 11.79(B III)	11.50 (B III)	11.78 (B III)	12.81 (B III)
BOB	14.36(B II)	14.52(B II)	14.67(B II)	13.30(B II)	12.28(B III)	12.60(B III)	13.17(B III)	12.24(B III)	12.13 (B III)	13.42(B III)	13.30 (B III)

Table 3 depicts Capital adequacy Ratio of top 5 public sector banks . The ratio indicates the financial position of banks, the banks with higher ratio are able to withstand a financial downturn or unforeseen losses . The ratio shows fluctuating trend for all banks , however they are able to maintain a ratio above 9% as per RBI norms , indicating better financial stability.

BII – Basel 2

BIII- Basel 3

Table 4: Equity to Asset Ratio (%)

Banks	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
SBI	0.027	0.0519	0.0502	0.0437	0.0416	0.0365	0.0329	0.0294	0.0258	0.0242	0.022
IDBI	-	0.389	0.440	0.413	0.488	0.451	0.550	0.569	0.880	2.415	3.461
PNB	0.106	0.084	0.074	0.074	0.066	0.061	0.058	0.591	0.072	0.119	0.162
UBI	-	0.222	0.210	0.191	0.178	0.167	0.170	0.152	0.240	0.357	0.622
BOB	-	0.1096	0.0922	0.0772	0.0653	0.0620	0.0688	0.0665	0.0736	0.068	0.0799

Table 4 depicts Equity to Asset Ratio of top 5 public sector banks The ratio measures the amount of equity the business has when compared to the total assets owned by banks . The higher the percentage the less of a debt is used by the banks. The ratio has increased for all banks, thereby indicating that banks are using more of debts in their financial structure .

Table 5: NPLs to Loans Ratio (%)

Banks	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
SBI	3.091	3.345	4.573	4.901	5.092	4.363	6.707	7.151	11.547	7.903	6.412
IDBI	-	1.773	2.521	3.286	5.038	6.088	11.522	23.452	32.368	34.081	36.418
PNB	1.723	1.81	2.968	4.362	5.416	6.752	13.537	13.20	19.971	16.90	15.57
UBI	-	2.43	3.06	3.03	1.12	5.10	9.04	11.77	11.68	16.41	15.58
BOB	-	1.38	1.55	2.43	2.99	3.80	10.56	11.15	13.21	10.29	10.05

Table 5 depicts NPLs to Loans Ratio of top 5 public sector banks.. A high ratio means that the bank is at a greater risk of loss if it does not recover the owed loan amounts, whereas a small ratio means that the outstanding loans present a low risk to the bank. The ratio has increased for all the banks , indicating that banks are at greater risk & they are not able to recover the loans

Table 6: Loans to Assets Ratio

Banks	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SBI	60.01	61.837	64.961	66.759	67.485	63.475	62.084	58.060	56.006	59.384	58.847
IDBI	59.664	62.469	62.601	61.154	60.402	58.802	58.545	53.550	49.742	46.815	43.301
PNB	NA	63.994	64.116	64.469	63.455	63.072	61.782	58.236	56.636	59.133	56.801
UBI	NA	63.981	67.839	66.729	64.759	66.993	66.063	63.279	59.244	60.103	57.211
BOB	NA	63.81	64.24	59.98	60.20	59.87	57.16	55.16	59.37	60.03	59.60

Table 6 depicts Loans to Assets Ratio of top 5 public sector banks. All the banks were able to reduce the ratio in the decade , thereby able to reduce liabilities **.** It is an indication of better financial stability.

Calculation of S-score

Public Sector Banks

S-score											
S =1.5*CA +1.2*EA +3.5*CAR +0.6*NPL +0.3*CI +0.4*LA											
2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Mean (S) score**	**S>70 (Solvent) S=50 to 70 (Grey Area) S<50(not solvent)**
89.07	98.15	94.61	96.39	90.51	95.74	96.22	97.23	95.44	94.97	94.83	Solvent (SBI)
91.05	95.06	89.41	88.55	88.24	96.66	98.09	105.33	130.45	134.70	101.75	Solvent (IDBI)
91.17	92.75	96.09	95.03	95.83	95.04	93.92	91.99	90.77	106.47	94.91	Solvent (PNB)
95.11	92.01	90.55	87.79	89.00	93.13	95.12	93.15	98.23	100.53	93.46	Solvent (UBI)
98.07	98.56	92.79	90.15	91.85	99.45	94.13	97.02	99.73	100.19	96.19	Solvent (BOB)

As per the model 'S' score greater than 70 percent are solvent and termed as super sound banks, while those banks having 'S' score below 50 percent are said to be not solvent. The area between 50 and 70 percent is defined as gray area because of the susceptibility to error classification. All the top 5 public banks have mean score (2011-2020) of more than 70, hence they solvent & can be termed as super sound.

IDBI bank (101.75%) has the highest mean S score , followed by Bank of Baroda (96.19%) & Punjab National Bank (94.91%) which implies that the banks are solvent and super sound in their financial strength. The least mean score is of Union Bank of India (93.46%) . All banks have S-score of more than 92%.

B) Private Sector Banks

Table 7 : Capital to Assets Ratio (Rs in cr)

Banks	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
HDFC	-	9.15	8.86	9.05	8.84	10.50	10.25	10.36	9.99	11.99	11.17
KMB	-	13.44	12.15	11.31	14.03	13.34	12.46	12.87	14.15	13.74	13.61
ICICI	-	13.56	12.75	12.43	12.31	12.45	12.45	12.95	11.96	11.24	10.61
AXIS	-	7.828	7.985	9.722	9.973	9.671	10.117	9.271	9.178	8.324	9.28
Bandhan	-	-	-	-	-	-	16.88	14.71	21.17	19.85	16.57

Table 7 depicts the Capital to Assets ratio of top 5 private sector banks . The ratio has increased for all banks , thereby indicating that they have enough capital to cover their assets

Table 8: Cost to Income Ratio (%)

Banks	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
HDFC	-	45.13	38.03	38.02	36.53	36.84	36.69	37.84	39.62	38.41	38.52
KMB	-	54	53	51	50	52	58	48	47	47	47
ICICI	-	32.22	28.67	28.67	31.30	32.70	39.40	42.68	46.51	48.98	45.79
AXIS		39.45	33.54	32.72	34.53	34.74	35.70	46.42	51.64	44.28	50.03
Bandhan	-	-	-	-	-	-	58.97	36.31	35.00	32.58	30.82

Table 8 depicts the Cost to Income ratio of top 5 private sector banks .The ratio has increased for all banks except Axis bank , indicating lower profitability **,** due to increase in cost .

Table 9 : Capital adequacy Ratio (%)

Banks	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
HDFC	-	16.2	16.5	16.8	16.1	16.8	15.5	14.6	14.8	17.1	18.5
KMB	-	19.9	17.5	16	18.8	17.2	16.3	16.8	18.2	17.5	17.9
ICICI	-	19.5 (B II)	18.5(B II)	18.7(B II)	17.7(BIII)	17.02	16.64	17.39	18.42	16.89	16.11
AXIS	-	12.65	13.66	17.00	16.07	15.09	15.29	14.95	16.57	15.84	17.53
Bandhan	-	-	-	-	-	-	29.01	26.36	31.48	29.20	27.43

Table 9 indicates the Capital Adequacy ratio of top 5 private sector banks The ratio has increased for HDFC & Axis bank only .Indicating better financial position in comparison to other banks . However all the banks are able to maintain a ratio above 9%.

Table 10 : Equity to Asset Ratio (%)

Banks	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
HDFC	-	0.168	0.139	0.119	0.098	0.085	0.071	0.059	0.049	0.044	0.036
KMB	-	0.725	0.564	0.446	0.440	0.364	0.477	0.429	0.360	0.306	0.266
ICICI	-	0.284	0.243	0.215	0.194	0.180	0.161	0.151	0.146	0.134	0.117
AXIS	-	0.169	0.145	0.137	0.123	1.103	0.091	0.080	0.074	0.064	0.062
Bandhan	-	-	-	-	-	-	5.543	3.622	2.692	2.114	1.756

Table 10 indicates the Equity to Assets ratio of top 5 private sector banks The ratio has declined for all the banks , thereby indicating use of more debt in the capital structure of the bank. Hence banks are relying more on debt for financing.

Table 11 :NPLs to Loans Ratio(%)

Banks	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
HDFC	-	1.059	1.023	0.974	0.987	0.941	0.946	1.061	1.307	1.370	1.273
KMB	-	2.057	1.572	1.564	1.998	1.870	2.392	2.630	2.254	2.172	2.288
ICICI	-	4.638	3.734	3.310	3.102	3.90	6.024	9.082	10.390	7.790	6.327
AXIS	-	1.123	1.064	1.215	1.368	1.462	1.797	5.704	7.790	6.020	5.291
Bandhan	-	-	-	-	-	-	0.151	0.512	1.256	2.067	1.490

Table 11 depicts the NPL to loans ratio of top 5 private sector banks .The ratio has increased for all the banks thereby indicating less recovery of loans **.** More & more loans are converting into bad debts.

Table 12 :Loans to Assets Ratio(%)

Banks	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
HDFC	-	57.68	57.83	59.88	61.64	61.90	64.54	64.20	61.88	65.84	64.93
KMB	-	57.68	59.51	57.91	60.54	62.41	61.72	63.42	64.06	65.892	61.00
ICICI	-	53.26	53.57	54.07	56.96	59.98	60.40	60.15	58.28	60.83	58.75
AXIS	-	58.67	59.43	57.84	60.03	60.85	64.47	62.027	63.60	61.77	62.44
Bandhan	-	-	-	-	-	-	62.95	55.69	67.06	70.24	72.65

Table 12 depicts the Loans to Assets ratio of top 5 private sector banks .The ratio has decreased for all banks except Axis & Bandhan bank, indicating greater proportion of use loan/debt component for financing assets

Calculation of S-score.

Private Banks

S-score											
S =1.5*CA +1.2*EA +3.5*CAR +0.6*NPL +0.3*CI +0.4*LA											
2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Mean (S) score**	**S>70 (Solvent) S=50 to 70 (Grey Area) S<50(not solvent)**
107.88	106.36	108.46	105.94	111.03	107.10	104.38	104.27	116.56	119.84	**109.18**	S(HDFC)
131.19	120.79	112.91	127.79	122.33	119.83	120	126.43	124	123.26	**122.85**	S (Kmb)
122.69	116.43	116.57	114.68	114.53	116.70	122.78	126.09	119.84	113.55	**118.39**	S(ICICI)
92.20	94.45	107.93	106.54	104.28	106.38	108.48	117.47	109.60	118.51	**106.58**	S (Axis)
_	-	-	-	-	176.45	152.14	183.24	173.62	162.17	**169.52**	S(Bandhan)

***The first Annual report of Bandhan bank came in 2015-16.**

Conclusion

As per the parameters of bankometer model, all the top 5 private sector banks have mean percentage score (2011-2020) of more than 70 , hence they solvent & can be termed as super sound.

Bandhan bank (169.52%) has the highest mean S score though the data through annual reports is available from 2016 only. It is followed by Kotak Mahindra bank (122.85%) & ICICI Bank (118.39%) which implies that the banks are solvent and super sound in their financial strength. The least mean score is of Axis bank (106.58%). All banks have S-score of more than 100%.

The S-score of private banks is more than public banks , which implies that the financial position of private sector banks is better than public sector banks.

References

1) https://www.idbibank.in/idbi-bank-anual-report.asp

2) http://www.differencebetween.net/business/difference-between-gross-npa-and-net-npa/

3) https://www.sbi.co.in/webfiles/uploads/files/ppt%20for%20analyst.pdf

4) https://www.livemint.com/companies/company-results/sbi-net-profit-jumps-to-rs-3581-crore-on-one-time-gain-11591347940058.html

5) https://www.moneycontrol.com/stocks/marketinfo/marketcap/bse/bank-private.html

6) https://www.moneycontrol.com/financials/bandhanbank/balance-sheetVI/BB09/1#BB09

7) https://www.bandhanbank.com/Annual-report.aspx

8) https://www.ndtv.com/business/stock/hdfc-bank-ltd_hdfcbank/financials-historical-ratio

9) https://www.bandhanbank.com/pdf/Bandhan-Bank-AR-2015-16.pdf

10) https://www.moneycontrol.com/financials/bandhanbank/balance-sheetVI/BB09/1#BB09

11) https://www.bandhanbank.com/Annual-report.aspx

12) https://www.ndtv.com/business/stock/hdfc-bank-ltd_hdfcbank/financials-historical-ratio

13) https://www.moneycontrol.com/stocks/marketinfo/marketcap/bse/bank-public.html

14) https://www.insee.fr/en/metadonnees/definition/c1366#:~:text=The%20coefficient%20of%20variation%20(CV,generally%20expressed%20as%20a%20percentage.